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Gunners' Instruction

1917-1918

(Gun Companies)

Supplement for

3-Inch, 4-Inch, and 4.7-Inch R. F. Guns

----- Company, Fort -----

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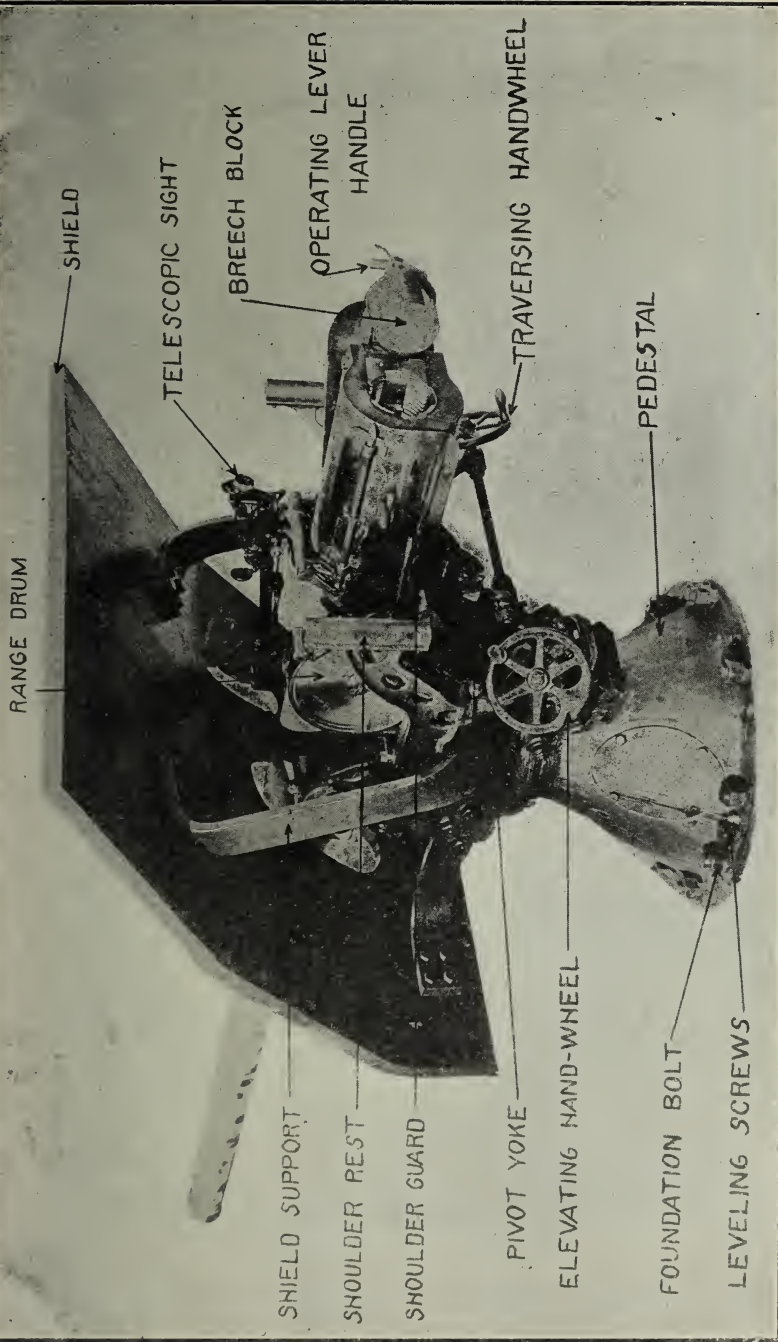
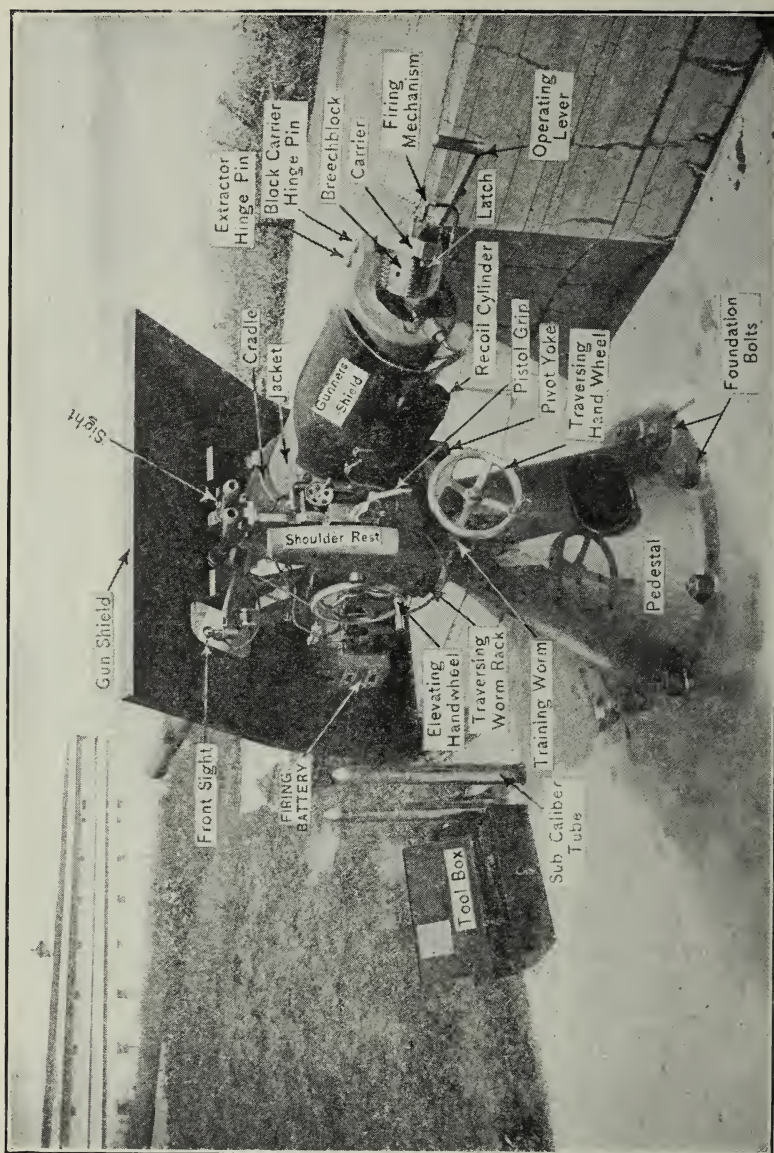


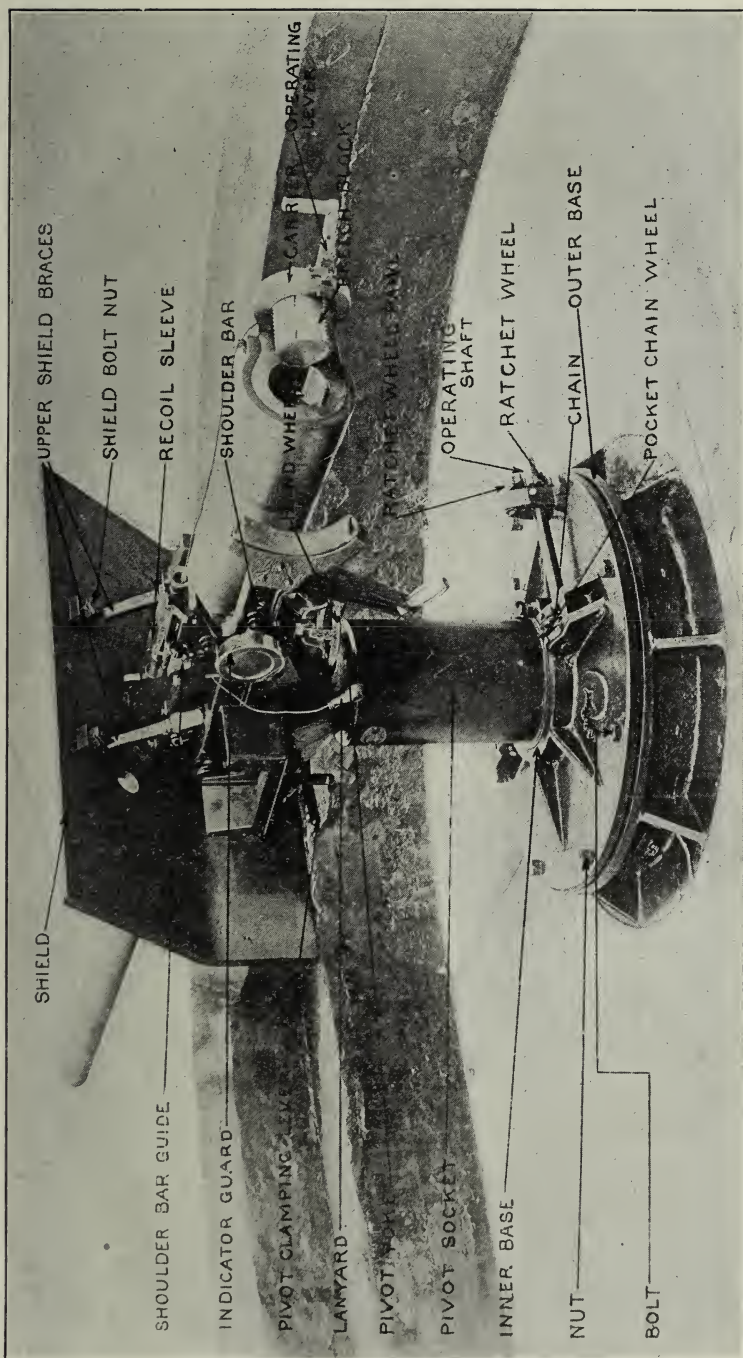
FIG. 1. 3-INCH (15-POUNDER) R. F. GUN ON PEDESTAL MOUNT, MODEL 1903

Department of Enlisted Specialists, C. A. S.



From the Service of Coast Artillery, Hines-Ward.

FIG. 2. 3-INCH (15-POUNDER) R. F. GUN, MODEL 1902 M1, ON PEDestal MOUNT



Department of Enlisted Specialists, C. A. S.

FIG. 3. 3-INCH (15-POUNDER) R. F. GUN, MODEL 1898. MASKING PARAPET MOUNT, MODEL 1898 (DRIGGS-SEABURY)

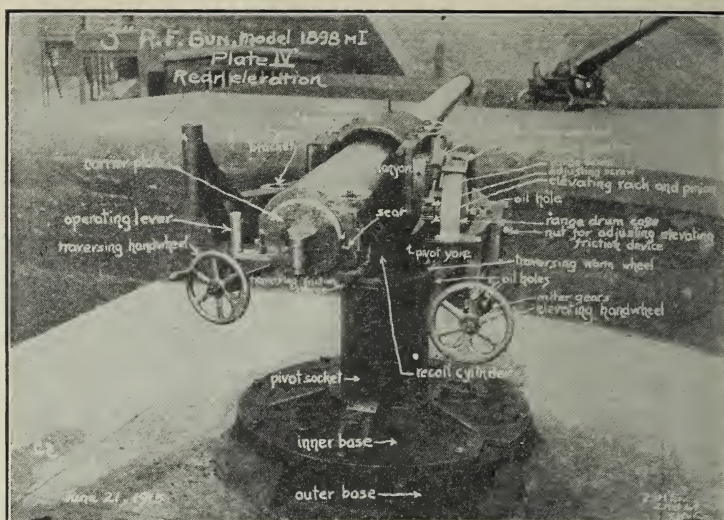


FIG. 4.

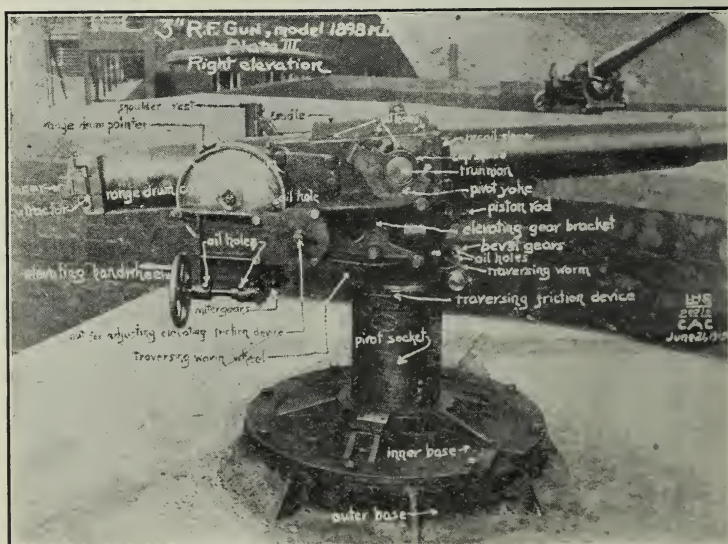


FIG. 5. 3-INCH (15-POUNDER) R. F. G. N AND CARRIAGE, MODELS 1898 MI.
(FIGS. 5-13, INCLUSIVE, ARE OF SAME GUN AND CARRIAGE.)

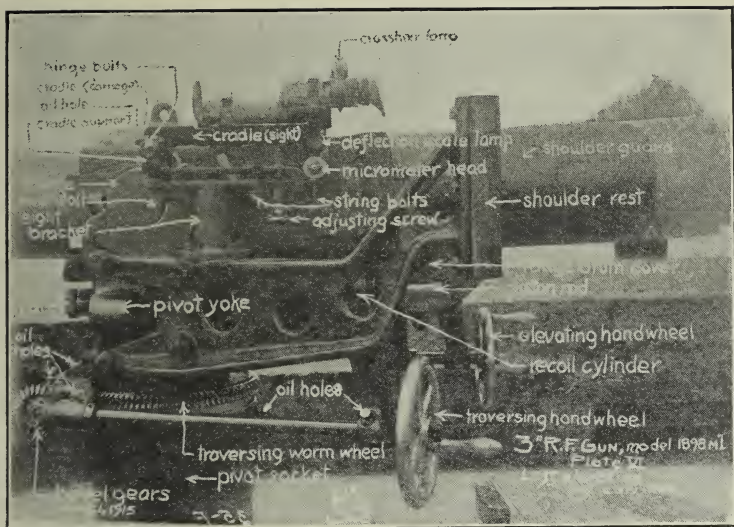


FIG. 6.

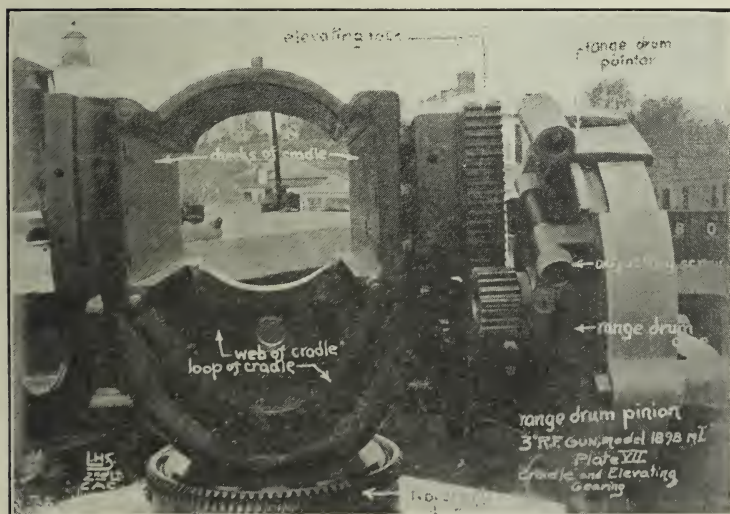


FIG. 7.

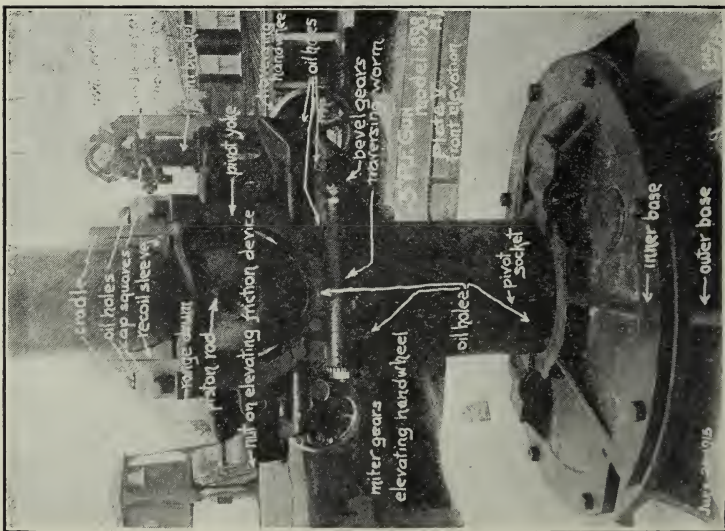


FIG. 8.

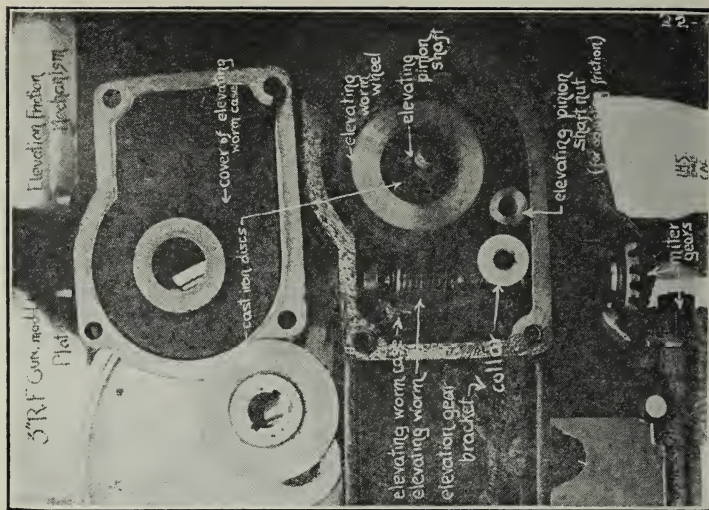


FIG. 8.

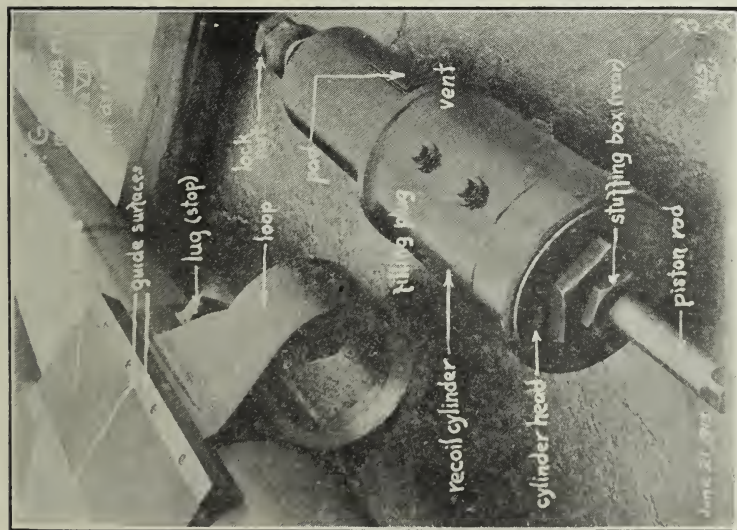


FIG. 10.

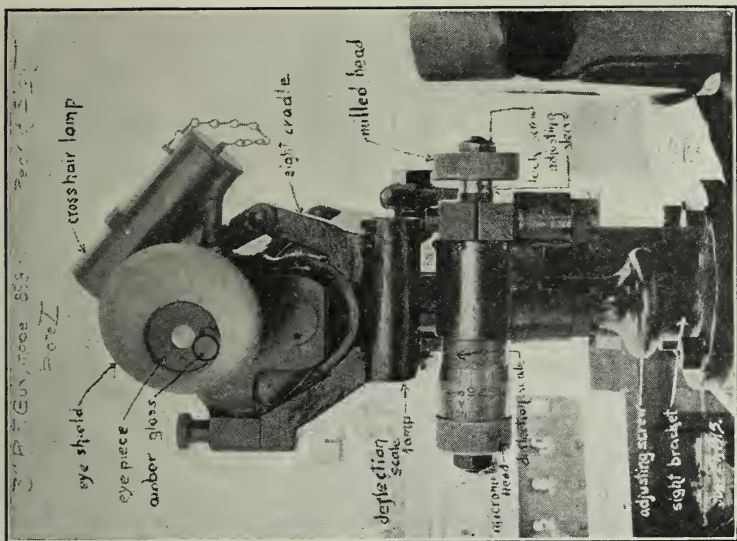


FIG. 11.

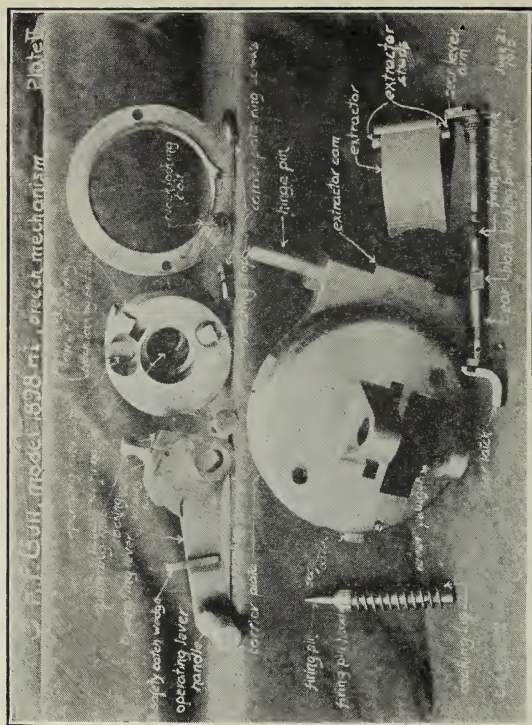


FIG. 12.

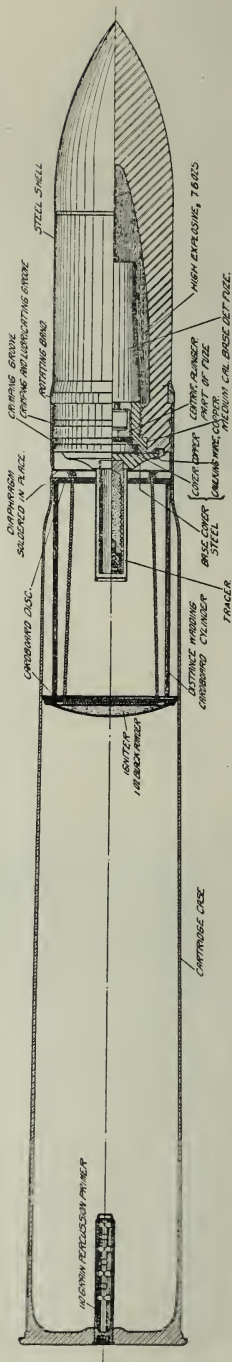


FIG. 13.

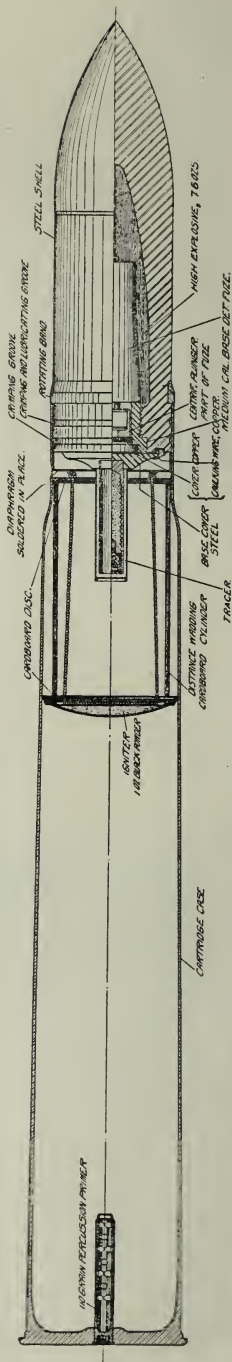


FIG. 14.
ASSEMBLED ROUND OF 3-INCH (15-POUNDER) FIXED SHELL AMMUNITION

(a) AMMUNITION, NOMENCLATURE, ETC.

SERVICE OF 3-INCH, 4-INCH, AND 4.7-INCH GUNS

Q. What are the duties of the gun commander?

A. The gun commander is in command of the gun section, and is also chief of the gun detachment. He is responsible to the emplacement officer for the condition of the material and the efficiency of the personnel of his section, and he sees that the gun, magazines, equipments and implements are properly secured after the day's drill. (See also page 6.)

He is particularly charged with seeing that his piece is properly loaded and that the precautions for safety in case of misfires are carried out. At the command *Cease Firing*, he will cause the breech to be opened.

Q. What are the duties of the ammunition detachment?

A. (See paragraph 192, page 5.)

Q. What are the duties of the cannoneers?

A. (See page 6.)

THE 3-INCH (15-PDR.) RAPID FIRE GUN

MODELS OF 1903 AND 1902 MI

Q. Of what is the gun made?

A. Nickel steel and consists of the tube, the jacket and the breech bushing.

Q. What is the bore composed of?

A. It is composed of the chamber and the main bore.

Q. What is the twist of the rifling?

A. It is right hand and increases from one turn in a distance of 50 calibers at the breech end to one turn in a distance of 25 calibers at a point 9 inches from the muzzle.

Q. What is the breech bushing for?

A. It is to hold the breechblock and it contains four slotted and four threaded sectors so placed as to receive the corresponding sectors of the breechblock.

Q. What are the parts of the breech mechanism?

A. The breechblock, block carrier, block latch, operating lever, operating bar, hinge pin, extractor, trigger shaft, and firing mechanism. (The breechblock is mounted eccentrically in the breech of the gun.)

Q. Why is the breechblock mounted eccentrically?

A. It is to mask the point of the firing pin and prevent any possible contact between it and the primer in the cartridge case when the block is unlocked.

Q. What are the principal weights and dimensions?

	Model of 1903	Model of 1902 MI
Weight of gun.....	2690 lbs.	1925 lbs.
Caliber.....	3 inches	3 inches
Total length.....	170 inches	154.4 inches
Length of bore.....	55 calibers	50 calibers
No. of grooves.....	24	24

	Model of 1903	Model of 1902 MI
Kind of powder.....	Nitrocellulose	Nitrocellulose
Weight of charge.....	5.5 lbs. (about)	5 lbs. (about)
Weight of cartridge case.....	8.4 lbs.	6.8 lbs.
Weight of projectile (filled).....	15 lbs.	15 lbs.
Weight of one round.....	30 lbs. (about)	27 lbs. (about)
Muzzle velocity.....	2600 ft. per sec.	2600 ft. per sec.
Maximum range.....	8000 yds. (about)	8000 yds. (about)
Penetration in <i>Krupp armor</i> at		
Muzzle.....	2.9 inches	2.9 inches
1000 yds.....	2.2 inches	2.2 inches
2000 yds.....	1.7 inches	1.7 inches
3000 yds.....	1.3 inches	1.3 inches
5000 yds.....	0.8 inch	0.8 inch

MODEL OF 1898 MI

Q. Of what is the gun made?

A. Steel and it consists of a tube, a jacket, a hoop, and the breech mechanism.

Q. What holds the breechblock?

A. The breech recess formed by the jacket projecting to the rear of the tube far enough to contain 4 slotted and 4 threaded sectors so placed as to receive the corresponding sectors of the breechblock.

Q. What are the parts of the breech mechanism?

A. Block, carrier plate, carrier plate ring, block locking bolt, operating lever, firing pin, extractor and hinge pin. (See Figs. 12 and 13.)

Q. Is this block mounted eccentrically?

A. Yes, for the reason given under the 1903 model.

Q. What are the principal weights and dimensions?

Weight.....	1782 lbs.
Caliber.....	3 inches
Total length.....	154.5 inches
Length of bore.....	50 calibers
No. of grooves.....	24
Twist of rifling.....	1 turn in 50 calibers to 1 turn in 25 calibers at 9 inches from the muzzle.
Powder charge.....	5 lbs. (about)
Kind of powder.....	Nitrocellulose (smokeless)
Weight of projectile (filled).....	15 lbs.
Weight of one complete round (fixed ammunition).....	26.8 lbs.
Muzzle velocity.....	2600 ft. secs.
Maximum range.....	7500 yds. (about)
Penetration in <i>steel</i> at	
Muzzle.....	3 inches (about)
1000 yds.....	2 inches (about)
5000 yds.....	0.8 inch (about)

MODEL OF 1898

Q. Of what is the gun made?

A. Steel, and it consists of a tube, a jacket, a hoop, and the breech mechanism.

Q. What holds the breechblock?

A. The breech recess formed by the jacket projecting to the rear of the tube far enough to contain 3 slotted and 3 threaded sectors so placed as to receive the corresponding sectors of the breechblock.

Q. What are the parts of the breech mechanism?

A. The block, the carrier plate, the carrier plate ring and its screws, the block-locking spring, the operating lever and pin, the firing pin and spring, the extractor, and the hinge pin.

Q. Is this block mounted eccentrically?

A. No, and one of the detachment must pass his hand over the face of the block when open to ascertain if the firing pin projects.

Q. What are the principal weights and dimensions?

A. The same as for the model of 1898 MI.

AMMUNITION

Q. What is the cartridge case for 3-inch guns?

A. It is of solid drawn brass, about 2 feet long fitting the chamber recess in the base of the gun. It contains the powder, weighing about 5 pounds, and, with fixed ammunition, it also contains the projectile.

Q. What primer is used?

A. 110-grain percussion primer of Frankford Arsenal design.

Q. What projectiles are used?

A. Steel shell and shrapnel are used for service projectiles. Cast iron or steel shell are used for target practice.

Q. What fuses are used?

A. In the steel shell, a minor caliber base percussion fuse is used. In the shrapnel a time fuse is used.

THE 3-INCH (15-PDR.) BARBETTE CARRIAGE

MODEL OF 1903

Q. What are the principal parts of the carriage?

A. The carriage is of the pedestal mount type and its principal parts are: Pedestal, pivot yoke, cradle, recoil cylinder, traversing and elevating mechanism, shield and shield supports, peep and telescopic sight, firing mechanism, shoulder rests, and electrical attachments. (See Fig. 1.)

Q. What is the action of the gun when fired?

A. The gun recoils to the rear about 9 inches in the cradle, carrying with it the recoil cylinder and thereby compressing the counter recoil spring which pushes the gun into battery again after the resistance of the oil has stopped the recoil.

MODEL OF 1898 MI

Q. What are the principal parts of the carriage?

A. The outer base, the inner base, the pivot socket, the pivot yoke, the pivot thrust bearing, the cradle, the recoil sleeve, the recoil cylinder, the piston rod, the shoulder rest, the elevating and traversing mechanisms, the range drum, the shield and shield braces and the electrical equipment. (See Figs. 4 and 5.)

THE 3-INCH (15-PDR.) MASKING PARAPET MOUNT

Q. What are the principal parts of the carriage?

A. The outer base, the inner base, the counterweight, the counterweight

chains, the chain wheels, the operating shaft, the pivot socket and bar, the pivot socket clamp, the pivot yoke, the horizontal and vertical clamps, the recoil sleeve, the recoil cylinder and piston rod, the shoulder bar, the elevating mechanism, the sight drum and gearing, and the shield and braces.

Q. What is the object of this carriage?

A. To provide for lowering the gun below the crest of the parapet.

CARE OF PIECE

Q. What are the precautions for the care of rapid-fire guns?

A. All parts must be kept free from rust and dirt. The use of sand paper on bearing surfaces is forbidden. Emery cloth No. 1 being coarse enough for any ordinary rusting, should be used, the rust being softened, if necessary, by kerosene. Kerosene is used for cleaning purposes only; it is used with a force pump when used to clean recoil cylinders. Recoil cylinders should be emptied at least every three months, and thoroughly cleaned every six months. Hydrolene oil is used to fill the recoil cylinders.

Oil holes, when provided, must be cleaned out frequently to keep them free from dirt and grit. Before oiling at any oil hole wipe off carefully any dirt or grit. Engine oil is used for bright parts of guns and carriages in service, and for lubricating purposes when oil holes or plugs are provided.

Light slushing oil is used for bore and bright parts of guns and carriages out of commission. All steel and iron non-bearing surfaces, except the parts of the breech mechanisms, will be painted. The raised letters and rims of name plates will be kept clean and bright. The name plates will not be removed.

All parts not painted should be kept oiled, and all bearing surfaces well lubricated with the oils furnished by the Ordnance Department.

All lubricants and oils must be kept off electrical contacts. Night sights will not be kept lighted when not in use.

Before firing, dismount breech mechanism and examine all parts with care. Then remove oil and cover all parts of the mechanism with a paste made of flake graphite and kerosene. This will prevent any paste sticking during firing.

After firing, clean the bore with the sponge covered with burlap well saturated with water. The bore should then be permitted to drain thoroughly, after which it should be dried, and then oiled. Another method is to put an empty case in the chamber, elevate the gun and fill the bore with hot lye water. Plug the muzzle and depress and elevate several times. Then empty and wipe dry.

When firing blank ammunition, the powder chamber will be sponged after each shot with a sponge that has been dipped in liquid for sponging.

THE 3-INCH, 4-INCH, OR 4.7-INCH GUN DRILL

THE GUN SECTION

(Numbers refer to paragraphs in the 1914 Drill Regulations)

190. Each emplacement is manned by a gun section (12 enlisted men plus the reserve detachment) consisting of a gun detachment, an ammunition detachment, and a reserve detachment. The gun commander is in command of the gun section, and is also chief of the gun detachment.

191. The gun detachment (6 enlisted men) consists of the gun commander, the gun pointer, the range setter, and three cannoneers numbered from one

to three, inclusive. The gun detachment is divided into details as shown in the drill which [is given on page 6].

192. The ammunition detachment (6 enlisted men) consists of the chief of ammunition and five cannoneers numbered from four to eight, inclusive. The ammunition detachment is divided into details according to the location of magazines and shot rooms pertaining to the emplacement.

193. The reserve detachment consists of all unassigned cannoneers. It is posted by the gun commander at some convenient place or places, and is used by him to fill vacancies in the other detachments.

194. *To post the gun section.*—The section is posted as prescribed in detail in paragraph 40. The gun commander commands *DETAILS, POSTS*, and after the cannoneers are posted, he commands *EXAMINE GUN*.

195. *To call off.*—The battery commander may at any time give the command *CALL OFF*, which is repeated by the gun commander. The cannoneers call off their numbers, beginning at one.

196. *Method of firing.*—Chapter VI describes the method of firing and of fire direction.

197. The following drill is prescribed [page 6]:

NOTES ON THE DRILL

198. All cartridges will be tried in the chamber before using. Those which do not fit accurately will be rejected.

199. If a cartridge jams, attempt will not be made to drive it home by forcing the block; it will be withdrawn and another substituted.

200. If a cartridge case is extracted with difficulty, the cause may be due to a burr around the edge of the chamber, and if one is found, it should be filed smooth.

202. For 4.7-inch guns, battery commanders are authorized to modify the * * * drill to meet requirements.

3-Inch, 4-Inch, and 4.7-Inch Guns.

DETAILS	At Command DETAILS, POSTS	At Command EXAMINE GUN	At Command LOAD or COMMENCE FIRING	At Command CEASE FIRING
Gun commander (non-commissioned officer).	The gun commander gives the command DETAILS, POSTS, and supervises the procuring of equipment and implements.	The gun commander gives the command EXAMINE GUN, makes a general inspection of the gun and carriage, and reports to the emplacement officer.	The gun commander gives the command LOAD or COMMENCE FIRING and supervises the work of his section.	The gun commander gives the command CEASE FIRING and supervises the work of unloading.
Gun pointer (non-commissioned officer or private).	The gun pointer procures the sight and places it in its seat and takes post in rear of the shoulder piece, facing to the front.	The gun pointer examines the sight and examines the traversing mechanism, the firing circuit (if one is installed), and the lanyard (if used).	The gun pointer, having taken the travel of the target and set his sight for deflection, follows the target continuously, commands CLAMP (if clamps are provided), and fires or commands FIRE as soon after the command READY as the piece is pointed.	No duties.
Range setter (non-commissioned officer or private).	The range setter takes post near the range scale if the carriage is provided with one; otherwise at the elevating clamp, facing it.	The range setter tests the elevating mechanism and cleans and oils the gears.	The range setter keeps the piece laid continuously for range in accordance with the transmitted information, clamps [if clamps are provided] the gun in elevation at the gun pointer's command and unclamps immediately after the gun is fired.	No duties.
Breach detail, Nos. 1 and 2; No. 1 is chief of breach.	No. 1 procures a wiper or cotton waste and a can containing lubricating oil and a sponge. He places the can convenient to the breech and takes post about 2 feet to the rear and right of the breech, facing it. No. 2 procures a wiper or cotton waste and the sponge; he takes post about 2 feet to the rear and left of the breech, facing it.	No. 1 removes the breech cover and places it at the designated place. He examines the chamber, the bore, the breechblock and the breech mechanism and cleans and oils them, if necessary, assisted by Nos. 2 and 3. No. 2 removes the muzzle cover and places it at the designated place, prepares the lanyard (if used), examines, cleans, and oils the breech recess, assisted by No. 3.	No. 1 opens the breech, feels for the firing pin, closes the breech as soon as the cartridge is inserted, and commands READY. If there is difficulty in opening or closing the breech he wipes any residue from the threads of the breechblock, and oils the mechanism. [With the mechanisms of the 1903, 1902 MI, and 1898 MI models, No. 1 fires at the command of the gun pointer.] No. 2 picks up a cartridge and inserts it in the chamber, taking care that the point of the projectile does not strike. If there is difficulty in opening or closing the breech he wipes any residue from the threads of the breech recess and oils the threads if they become dry.	No. 1 opens the breech and closes it after the cartridge has been removed. No. 2. No duties.
Extractor detail, No. 3.	No. 3 procures the hand extractor and a pair of gloves. He takes post about 3 feet to the rear of the breech, facing it. [With gun on masking parapet mount, No. 3 procures the ratchet lever at the command POSTS, places it on the shaft, and at the command RAISE GUN mans the ratchet lever, assisted by the range setter, who clamps the pivot socket. The same numbers lower the gun when the drill is dismissed.]	No. 3 removes the filling plug. If the cylinder is not full he procures the measure containing hydrolene oil and the funnel, pours in oil until it stands in the filling hole, replaces the filling plug and the oil measure and funnel.	No. 3 receives the empty cartridge case as it is ejected and lays it aside. He uses the hand extractor when necessary.	No. 3 withdraws the cartridge.

(6)

